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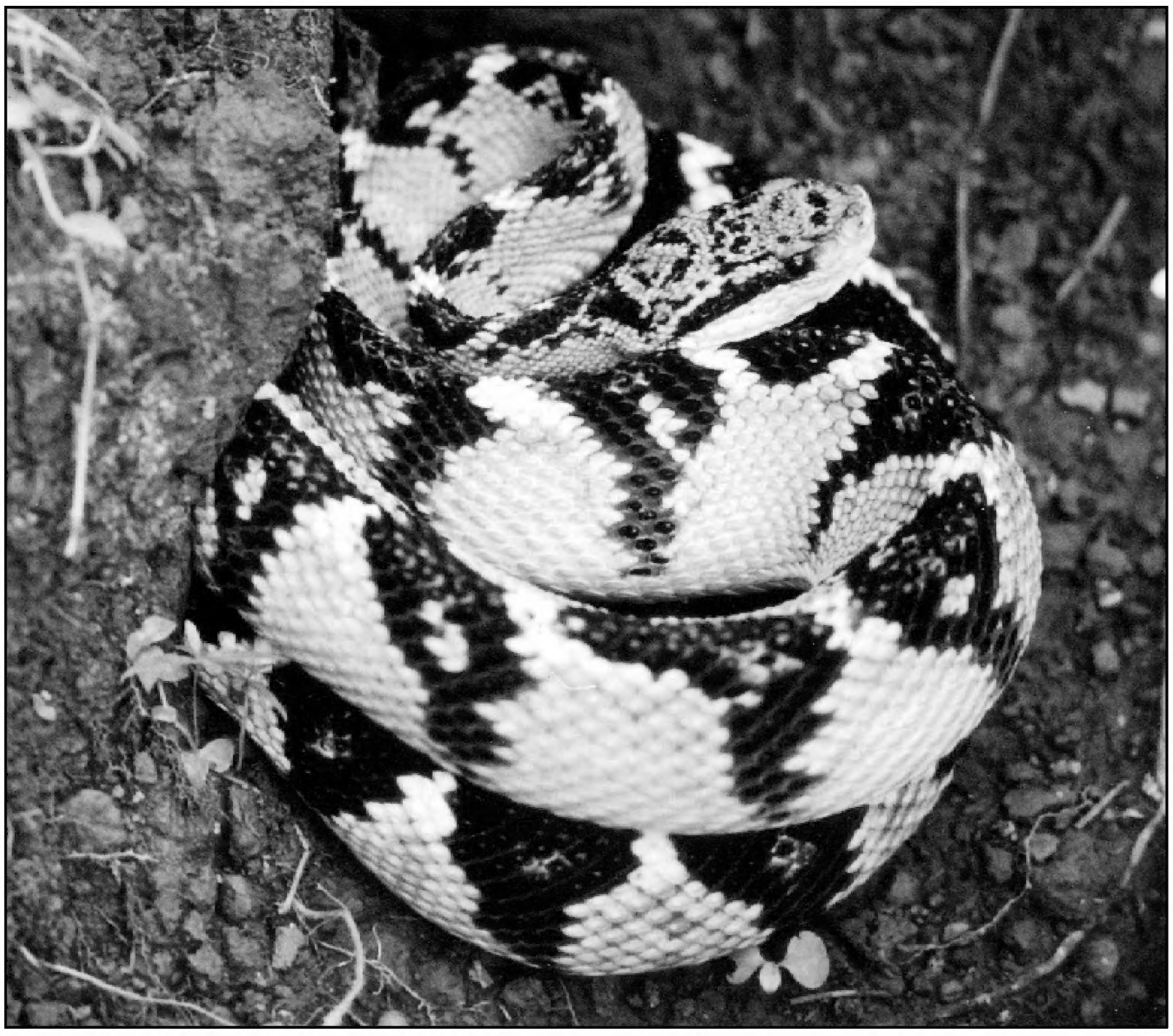

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The technique for handling large bushmasters advocated in this article is the author's alone. In no way does the Chicago Herpetological Society endorse or support this technique. The CHS, however, does urge the reader to pay heed to the plight of Brazil's Atlantic rainforest and the many endemic species that live there.

Concerning *Lachesis* and Capoeira[1] An Anti-Article by a Brazilian Outsider

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for Paulo de Tarso Hilario, YONIC's Director[2]
A "Firefighter" (*Apaga-Fogo*)[3]

Abstract

Report on a Brazilian medical doctor's handling of *Lachesis muta rhombeata* and how it compares with the ancient art of capoeira[1] from Angola.

I am a medical doctor from the Federal University of Minas Gerais, a member of the Brazilian School of Surgery, Medical Director of the Hospital Foundation of Itacaré, Director of Fauna at the YONIC organization, creator and head of the Serra Grande Center for Reproduction in Captivity of *Lachesis muta* (*rhombeata*?), Federally Registered Technician of IBAMA/Environmental Ministry Nº 495100. (IBAMA is Brazil's Department of the Interior.) We're situated in one of the last biomes where the Atlantic bushmaster, *Lachesis muta rhombeata*, persists. In 1989 it was considered "in extinction" on the official list of the Brazilian Institute of the Environment, IBAMA, and today it is listed as "vulnerable" by the International Union for the Conservation of Nature.

When I go out to do the daily chores I don't have science on my mind. I don't like company (a mistake), and I don't like conversation. It's as if alone, quiet and focused in the forest, the internal conditions emerge for the practice of my art.

The "art" of my work seeks to avoid an extremely violent confrontation that serves no one—not creature, not handler.

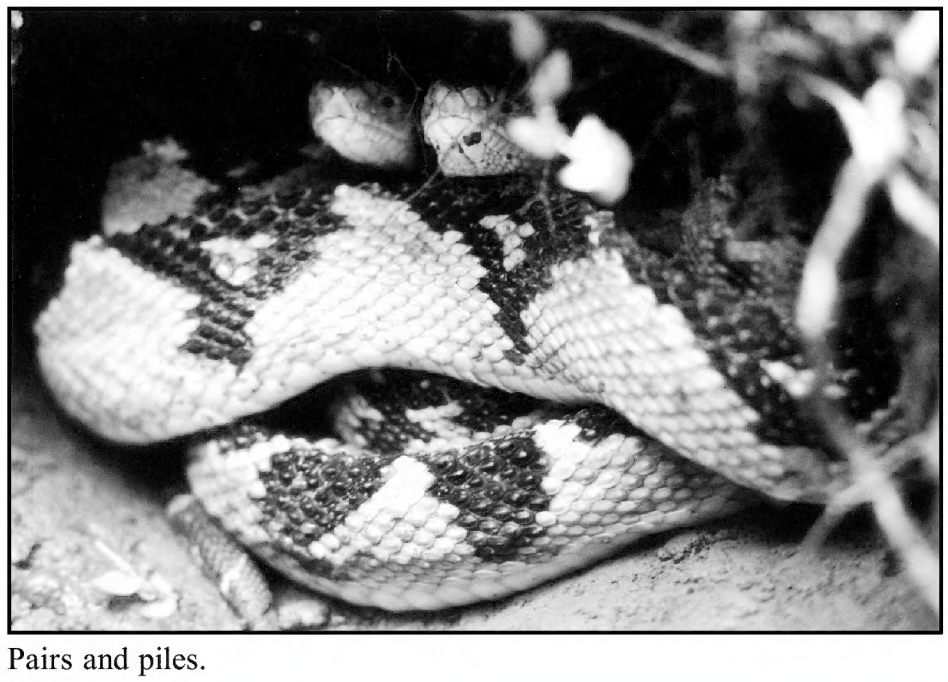
In practice, when I step back observing what I do in the snake pens day-to-day, it has more in common with ancient Angolan capoeira[1] than herpetology. Therefore, my great masters of inspiration are, without a doubt, Vicente Ferreira Pastinha, Curió, Joã o Grande, Joã o Pequeno, Valdemar, Neco, Braga, Neneu, Moraes, Alfinete e Lua, who blend their art, science, culture, "street-smarts," and if necessary, war. Everything starting from concentration.

Fake armadillo burrows.

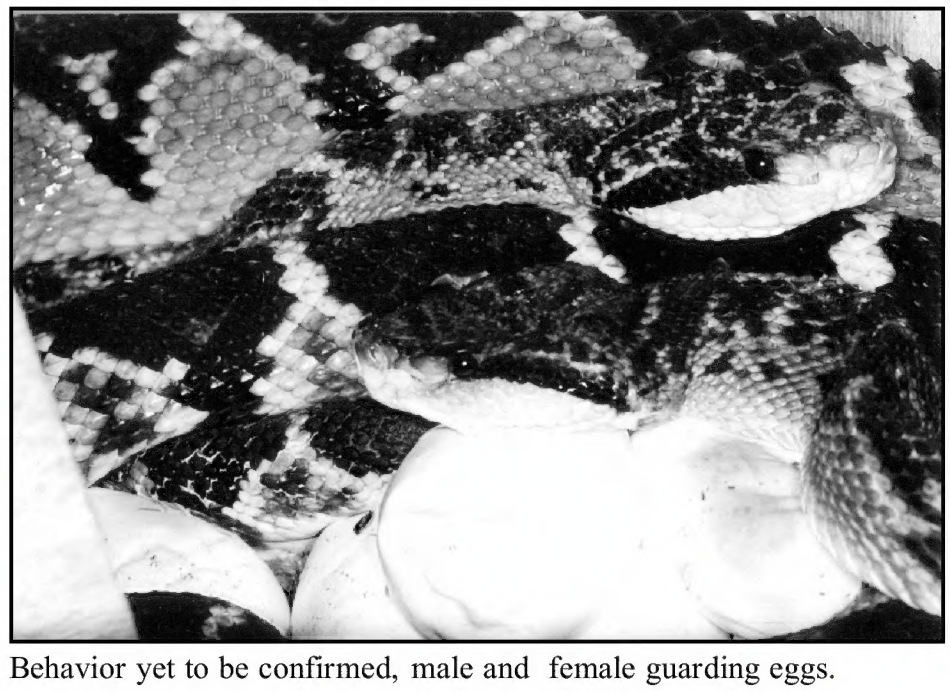
1. Capoeira is an Afro-Brazilian martial art whose truths and unique masters have either "gone to the moon," (passed away) or they are now in their 70s. Deadly, but to the untrained eye, capoeira looks like play.

2. YONIC: www.yonic.org, my one and only support.

3. "Firefighter" (Apaga-Fogo): *Lachesis muta rhombeata* (red variety). According to the people, the bravest kind of animal, capable of striking a heat source (lantern, candle, gas lamp) in a man's hand at night in the jungle.

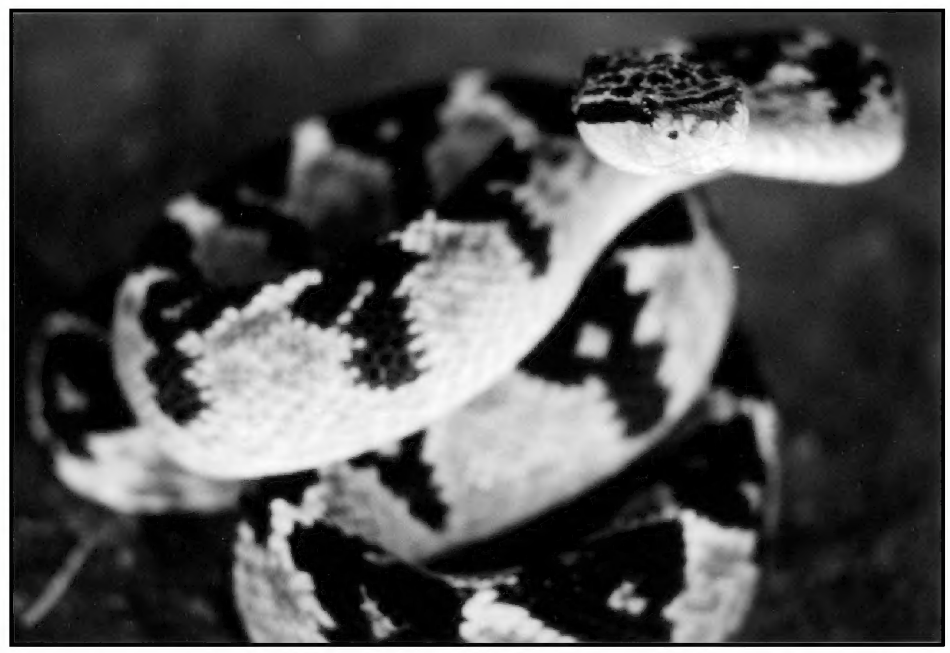


Pairs and piles.

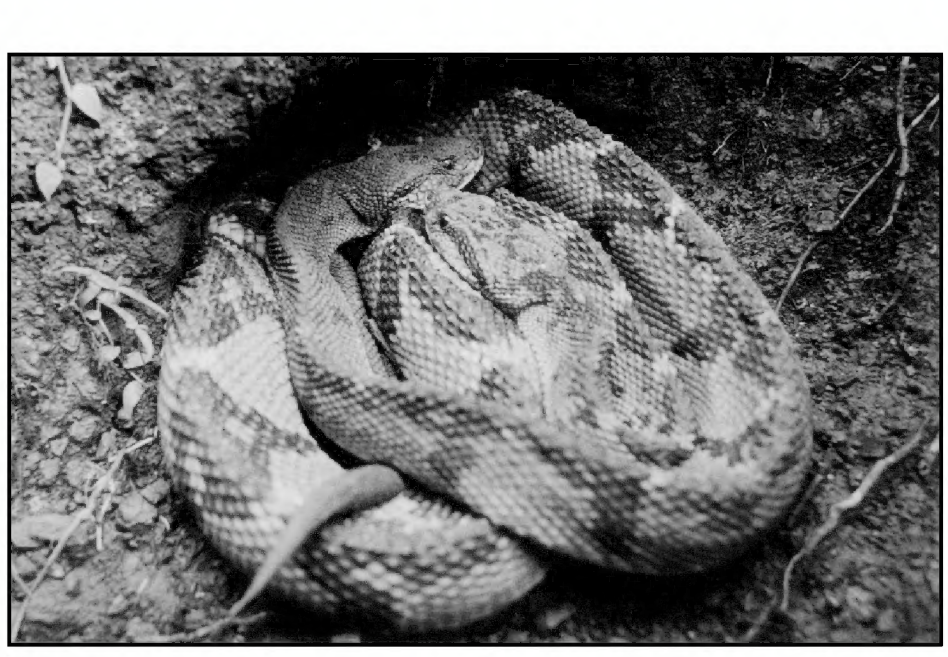


Behavior yet to be confirmed, male and female guarding eggs.

True strike– hold: fangs in the heart and lungs; lifting prey above the ground.



Third stage of *Lachesis* defensive behavior: first one, standing still relying on camouflage; second one, rattling tail against leaves; third stage, rising 2– 3 feet above the ground.



Romance.

The joy of closeness.

The author illustrates his preferred method for handling large bushmasters.

Our Serra Grande Center is an imitation of nature. It's a small-scale reproduction of everything I hear from the farmers, hunters, woodsmen who are my patients, and everything I have observed in dozens of casual encounters with snakes. Nothing new: burrows with galleries (even fake ones) simulating those made by pacas and armadillos; average altitude of 140 m above sea level, inland coast temperatures—cool (19– 27°C at the surface and 15– 18°C in the burrows), humid (always 75– 95% relative humidity). Leaves piled high for the constant renewal of the vivarium floor (to avoid pulmonary nematodes and other dangers of the forest).

Sensing something was going to get ugly, the Angolan martial artists would imitate drunks, and by the time the aggressor discovered the trick he was already on the ground. I disguise myself as a rock or a tree trunk. I work in canvas overalls with thermal insulation; hence, I am not a heat source, not a thermal overdose. I'm not in the radar of the snake's heat sensing pits, and if I'm quiet, cool and calm, I literally stay invisible in the middle of five to seven snakes, some as long as 2.30 m. When the disguise is exposed, they are already gently immobilized: to be checked for parasites or injuries, or to be sexed.

If necessary, I alternate the animals between the large enclosures (vivaria up to 40 m^2 for seven adults) and individual boxes of 1 m^3 until I can answer to myself: Why is this animal losing weight? (A conclusion that may be obvious in the eyes of a keeper even without a scale.) Why isn't this animal coiling itself? (Heavy pulmonary parasites?) Four months of isolation is common. Also, it's not rare to keep an animal with an incomplete change of skin for 72 hours in a semi-immersion box.

More important still is that the animal doesn't know it is confined, something easily observed by the lack of scrapes on the snout where we see it has not been searching for an escape route. I don't search for records of longevity in captivity. Live a shorter life, if this is the case, but bathe in the rain, get warm in the mild morning and early afternoon sun, hunt rats with great ability, be romantic and spend your days in a house that suits you. Our second mating was seen a few days ago. The first eggs were laid on January 4, 2003, but all were lost, perforated by fly larvae; we have to learn the hard way. I must say that as a consistent breeding program, we are so far a complete failure. But also for the first time in five years, we fully understand what we are doing and from now on we expect offspring every summer (hopefully). This is the basis of an organic animal hatchery, with the minimum possible medical treatment and manipulation. Time will tell whether our belief holds true: that if the snakes live free of stress and take nourishment at their own pace, good health will come as a consequence. Master Curió said that one who eats well lives longer.

Our rats are fed the best rodent pet food. Our snakes eat well at their own pace, small animals (~200 g), four times a month, rain or shine. They don't want to know about longevity through caloric restriction.

I've already seen the "Stingray's Tail" and I've seen the "Inner Full Moon," blows of amazing impact. Just seeing the explosion and velocity defies description; there's always a potential for cranial trauma, or even death. I've also seen *Lachesis* strike above waist height (I'm 1.82 m or 5′10″). I've worked for 30 years with *Bothrops* and *Crotalus* and for five years exclusively with *Lachesis*. There is no comparison for speed and precision; *Lachesis* doesn't bluff. I was called to remove a 2.20 m male *rhombeata* that was 20 m from the house of a local veterinarian. The snake had attacked the headlight of a passing motorcycle on a narrow track in the woods at night, knocking the biker off the road. When I arrived at the scene 30 minutes later, the snake was there facing the heat source, the engine.

As for the work, as it is in the capoeira circle, what's most important is the space, the instinctive knowledge of distance: to anticipate possible escape routes and to avoid the difficulty of corralling stray animals. Also, of great concern is the somewhat unproven use of lassos: the animal, mainly in the neck region, is very muscular for the "scant" osteo-tendonous frame. It will spin on its own axis provoking a spinal cord injury. Unnecessary harm can be avoided by respectful handling of the animal: lifting it with mild, manual pressure at a point a little above the cloaca, giving it support near the division of the third cervical vertebra and the third median. But due to the risks involved, such handling should not be considered by those with limited experience with *Lachesis*. The rule is not to see the two heat-sensing pits at the same time. Because if you see them, you've already been "seen"; now you are a target. Because of the fragility of its internal ligaments, a sudden drop of 80 cm in height can result in death.

Today I have to immobilize some animals and I am fraught with anxiety. I'm never going to lose the fear. I've already seen a child die almost instantaneously, and I've seen an adult completely knocked out in just 15 minutes. His blood pressure had a sudden drop to 50/20. (This specific accident happened only two feet away from me.) I keep remembering my two sons and how fatherhood robs you of your right to suicide. For that reason it's necessary to work in pairs, with someone equally focused and concentrated, outside the enclosure.

I conclude by explaining why I have the audacity to submit an anti-scientific article to none other than the Chicago Herpetological Society. I was encouraged to do so upon hearing that you are willing to judge both text and experiment based on merit and credibility. It doesn't matter if you are a biologist, herpetologist, "scientist," or anything like that. It is something very different that I observe here, under the equatorial sun.

It is estimated that between 5 and 7.3% remains of the original Atlantic Rainforest of Brazil. Satellite photos from CEPLAC (Federal Agency for Cocoa Research) reveal that in Bahia, the "little ant" deforestation was observed consuming 1% per year of the residual 5%. "Little ant" is a small-scale clear-cutting procedure, multi-focal and difficult to detect by government officials. I see a dark future for the species in the region, with "ghettos" in Private Natural Heritage Reserves (RPPN), islands of forest where genetic exchange won't be possible. Also without the forest shade, the eggs will dry up.

My work is confined to an 80 km radius where most of the snakes were captured. The possibility of an accord between man and this species does not exist. Despite the confirmed captures in the city, the animal is normally sighted by humble, rural people who already have enough problems in their lives and they don't want one more: I either remove the snake or it dies (they will kill it). Today, a partnership with with the military and civil police and the community permits this last chance.

It hasn't been easy to do what I do; the legislation is rigorous, as it should be. At times, it's like in the most beautiful chants from Angolan capoeira: I get "tired of living here on earth, wanting to move to the moon (transcend the earth) with my wife."

I heard Master Curió, an illiterate, say that now, to give a class (in capoeira), a person has "to have a course of study in a college of physical education." I would like to know the "master" of this generation who challenges Master Curió in the capoeira circle. In the same way, I have to deal with the jealousy of the "experts" — some with literally 100 years of incompetence working with this species. I would like to see the "expert" capture by hand, unharmed, an adult, 2.3-m-long bushmaster on a wet and slippery forest incline at night. (The animal during the day is one thing, at night it's another.) That one got too close to an impoverished little house and was detected by the dog. One famous rescue conducted by "specialists" resulted in the death of 180 *Lachesis* during the Tucurui Dam flood in the Amazon.

Surucucu, the name for the bushmaster in the language of the Tupi-Guaraní Indians, means "one who strikes repeatedly," and believe me, it wasn't without motive that my friend, "Pit Bull," the strongest worker I know, left his own mother behind in the race to escape after a nocturnal attack. He carried a lamp and believed that the "investigative strike" was that of a great "firefighter."

One last word to the wise, capoeira students or *Lachesis* handlers: a "safe" distance may be a little farther than you think.

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Herping in Australia–Field Notes and More
Part 12: Herping in Heaven, Hell or Melbourne

Raymond Hoser
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AUSTRALIA

Raymond Hoser's Birthday

At a recent birthday party in my honor here in Melbourne, some friends sang the following:

Here's to Raymond,
He's true blue,
He's a herper so they say,
Meant to go to heaven,
But he went the other way!
Drink it down, down, down.

The latter part coinciding with me being forced to skull a large mug of beer.

Now it'd be nice to think that all good herpers go to heaven, and for those who believe in Jesus Christ and the Bible, I'm happy for you. But for the more earthly among us, I'll put a different spin on things. While Sydney's a great place for herping, every herper always wants more. It's inevitable that we travel in search of newer and different critters. Now sure it's good to take a trip "up-north" or "out-west," but the best way to really get into these herpetological heavens is to move there.

And so, while I and many of my herpetological peers grew up in and around Sydney, many decided to go to heaven and move to Australia's deep north, by far the most exciting place to be for reptiles and frogs. I've lost count of all my herping friends and colleagues who gave up Sydney for nicer places.

There was Graeme Gow who gave up Sydney and went to Darwin. Roy Mackay ended up in New Guinea for some years, before settling down in far north Queensland. Keith Day—Darwin again. Michael Anthony. He went to Cairns in far north Queensland. Brad Crossman? He also went to Proserpine in far north Queensland. Kaj Bulliard. Well he ended up in Perth, Western Australia, as did Michael Maddox.

Compared to Sydney all those places are like herpetological heaven. But Melbourne, Victoria, is perhaps best described as a herpetological hell! Nine hundred kilometers southwest of Sydney, it has just seven local species of snake and not many more lizards.

The place is so cold and miserable that the only things that live here are those species that really can take the worst in terms of Australian weather. Species like small-eyed snakes (*Rhinoplocephalus nigrescens*), white-lipped snakes (*Drysdalia coronoides*) and lowland copperheads (*Austrelaps superbus*). And yes I bucked the trend and that's where I ended up. Melbourne!

But it's not all doom and gloom in Melbourne. While the herpetofauna there is depauperate compared to elsewhere in Australia, it is still unique in its own way, and the suite of species found here is totally different to those found in the more northern regions. From a herper's point of view the overwhelming difference between Melbourne and most other (more northern) Australian cities is the general lack of herps.

What I mean is that in Sydney and Brisbane for example, even if one lives in the innermost suburbs, you can't help but see countless small skinks scampering across walls and in the gardens. And as a matter of course you sometimes stumble upon larger species. In Melbourne you don't! In fact you can go for years walking through Melbourne's inner suburbs and never see a living reptile!

I knew things were bad in Melbourne in my second summer (1986/7), when there was a hot day (over 30°C) followed by a warmish evening. I called the best-known herper in town, Brian Barnett, and hit him with a question: "It's hot tonight, whereabouts can I go for a drive to find snakes crossing roads at night?"

He merely grunted at me in reply. Eventually he said, "Look mate, there's nothing here you go looking for at night. The only species around here likely to be nocturnal is the little whipsnake and I've never heard of anyone getting them at night." Confused I asked him for more information, which merely got me, "Look we find them under rocks in the day and no one's interested in them anyway!"

Thus I found out that there was no answer to Sydney's West Head Road or Brisbane's Mount Glorious Road in Melbourne. If one goes to the outer areas of the suburban sprawl and the adjoining countryside, sure you'll find reptiles, but save for a few optimal areas (which you'll soon be told about), most reptiles merely appear to cling to a precarious existence only in the most exposed (warmest) and least disturbed areas around.

But there are some redeeming aspects of the herpetology scene in Melbourne. And some of these Victoria-based herpers, such as Rob Valentic and Grant Turner, managed to let me in on some of their more exciting spots.

Basalt Plains

Before talking about the most prominent Melbourne habitat in terms of finding large numbers of reptiles and frogs, I'll speak briefly about the local herpetofauna in terms of the local reptile-people.

The only locally occurring lizards of significant interest to keepers seem to be the larger skinks in the form of Cunningham's skinks (*Egernia cunninghami*), eastern bluetongue (*Tiliqua scincoides*) and blotched bluetongue (*T. nigrolutea*). These species are usually kept by so-called beginners. The more "serious" herpers tend to keep other species. As it is the

"serious" herpers who tend to keep detailed records on their charges, do most breeding, publishing and so on, here in Victoria we are faced with the paradoxical situation of there being more known and published about rarer and interstate species than those that are commonly seen. While Victorian keepers have published many a definitive paper on breeding pythons of all forms, various monitors and other highly sought species, to find material on the breeding of common species is not an easy task.

When doing his Ph.D. on the genus *Tiliqua* (bluetongues), Glen Shea noted the great lack of data on these lizards, even though they were familiar to almost all Australians. He noted that for blotched bluetongues (*Tiliqua nigrolutea*) there was virtually nothing published in relation to their breeding, numbers of young and so on, other than generalized reports in mainstream books.

Fortunately here in Melbourne there is one man who has taken upon himself the task of working on these more common and often overlooked species. This is Grant Turner. Having gained his Ph.D. (unfortunately in mathematics), he spent most of his spare moments for many years out on the basalt plains of Melbourne doing research on his favorite reptiles. Besides that, he'd been breeding quite a few indigenous Victorian species for many years piling up such vast amounts of data that he had trouble digesting it and putting it into a publishable form. I've lost count as to how many times he'd bred his blotched bluetongues in captivity, although I do know he intends publishing a major paper on them.

Before talking about Turner's favorite place, the basalt plains, I'll set the scene for readers as to what the local Melbourne area holds. According to the 1982 *Year Book Australia*, the average elevation in Melbourne is 35 meters above sea level, which to all intents and purposes is the same as sea-level from a temperature and climate point of view. The climate of Melbourne, is as already noted, cool by Australian standards, with far more overcast weather than most other parts of Australia. The rainfall is not high in absolute standards (mm) due to the fact that most falls as drizzle and not heavy showers, thunderstorms or cyclonic lows. Average rainfall is 659 mm annually, with a known range of 331– 939 mm. Most rainfall seems to occur in late winter and spring, although this trend isn't always consistent. The year-round average maximum temperature is 19.7°C, with an average overnight low of 9.9°C. The lowest recorded temperature is -2.8°C while the top known temperature is 45.6°C.

Melbourne's weather is highly changeable and erratic, not just on a seasonal basis, but even on a daily basis. A local saying is, that if you don't like the weather, wait five minutes and it will change. The saying is often true. The main problem is that usually you still won't like it.

The topography of the city is mainly flat with hills to the east. These, the Dandenong Ranges, are heavily forested and contain a reasonable amount of logged and pristine bushland. Further hills and forested areas lie east of here. The Dandenong Ranges are made up of granite and mudstone. Most of the eastern half of Melbourne has clayish soil on mudstone. Most of this is built out with suburbs and what is left is relatively poor in terms of its herpetofauna species diversity and number.

To the north, west and southwest of Melbourne are relatively flat basalt plains, created by lava flows in recent geologic history, believed to have originated from volcanoes in western Victoria. South of Melbourne is the Port Phillip Bay, which forms an approximate north/south dividing line to where the basalt plains end.

The first (European) settlers to Victoria found the Melbourne area very suitable for grazing and agriculture and so virtually all the land was used. Consequently there is very little remnant bushland in the Melbourne metropolitan area. Parks within this area tend to be areas planted out with European style vegetation and not native species. This contrasts with Sydney, much of which was built in rugged hills with poor soils, where much was left untouched until this century, when it became designated as national parks.

Thus, while it is possible to find pristine natural bushland very close to the heart of Sydney city, it is not possible to do the same in Melbourne (except in small and very isolated pockets). Furthermore the areas outside of Melbourne that can be described as bushland or untouched, tend to be heavily degraded compared to what the first settlers saw.

While there is some uncertainty as to what vegetation was originally found in the Melbourne area, it is assumed that the eastern half of the city was covered in forest, while the northwest, west and southwest tended to be covered in grassy vegetation with scattered trees only. Most native grasses in these areas (the basalt plains) have long been superseded by introduced species which seem better able to cope with the grazing activities of the last two centuries.

A detailed discussion of Melbourne's snakes, as well as a detailed bibliography can be found in my paper "Melbourne's Snakes" (Hoser, 1990).

The Basalt Plains Microhabitat

Occurring roughly to the west of Plenty River Gorge, the basalt plains tend to cover virtually all the country to the west of Melbourne and extend through western Victoria. Isolated granite ranges such as the You Yangs (near Geelong) and other hills break up the otherwise all encompassing basalt plains. Basalt is a relatively unusual type of rock. It doesn't tend to readily exfoliate like sandstones and granites, is usually brownish-black in color and although it is common on the ground surface where it occurs, presents a totally different habitat to those of sandstone and granite areas. The major outcrops tend to be adjacent to or near watercourses, where erosion has cut into the underlying bedrock. It is in these areas that most reptiles tend to be seen.

To an untrained eye such as mine, whether the grasses are native or feral seems to make little difference to the appearance of the habitat. With a few notable exceptions, locally occurring reptile species also don't seem to have any major problems surviving in these altered habitats, although absolute

numbers may decline.

Due to the relatively flat and open nature of these areas, there always seems to be a wind blowing. The reptiles found in these areas clearly have to be adapted to survive long cold periods as well as occasional hot spells in summer. During winter, consistent rainfall, a low evaporation rate and a soil with a consistency like hard sponge all combine to make the ground waterlogged. This tends to bring most reptiles to the surface. Whether these species hibernate or not varies from species to species and also depends on how the term hibernation is defined. However it is clear that many reptiles shelter near to the ground surface due their inability to get any deeper without getting waterlogged.

In the warmer months (usually from approximately late November through to about April), the ground dries up and forms large deep cracks. At this time of year the reptiles are able to shelter in these cracks, usually deep underground. This is also the most difficult time of year to locate and capture these species.

A Day on the Basalt

In Melbourne's herping fraternity, the king of the basalt is without doubt Grant Turner. He's a Victorian herper who has spent the best part of twenty years in the field looking at reptiles found on Melbourne's basalt plains. While he had a reptile collection at home, he was also relatively unusual in the sheer amount of time he spent in the field studying the local reptiles.

On Saturday, 31 August 1996 Turner and another Victorian herper, Rob Valentic, took me to one of Grant's research sites in search of little whipsnakes (*Unechis flagellum*). It is the only kind of snake found in Melbourne and not Sydney (treating for a moment highland and lowland copperheads [*Austrelaps ramsayi* and *A. superbus*] as the same).

The little whipsnake is the only species of snake originally described from Melbourne (Rawlinson, 1965). This isn't surprising as the species is common throughout Melbourne's north and west, assuming a patchy distribution in other parts of its range.

We went to an area adjacent to Merri Creek at Somerton, on the northern edge of Melbourne. The site is exactly 20 km due north of the central business district and on the immediate edge of Melbourne's urban sprawl. The details of the hunt were published by Hoser (1998) and are repeated here in abridged form for your benefit, so that you can get a feel of the hunt itself.

The weather that day was unusually fine and mainly sunny with a steady south wind. The maximum air temperature was 15°C, which is line-ball for that time of year. All the reptiles seen were observed, some were photographed and all were left where found.

Grant Turner was busily recording everything he saw in his field notebook, while Rob and I pointed our cameras at everything that moved and some things that didn't. The highlight of the day were the many little whipsnakes that we found. Turner recorded the details of all specimens found as a number were known to him from previous inspections of the area. There are a number of scale anomalies common to these snakes, particularly with regards to their subcaudals that Grant is investigating to see if there are any general trends.

Little whipsnakes have been placed in a number of genera including *Denisonia*, *Rhinoplocephalus*, *Unechis* and *Suta*. I don't profess to know which is the correct one and have simply used *Unechis* here as a matter of habit. They are a small elapid (front-fanged venomous land snake) believed to feed almost exclusively on small skinks in the wild. Certainly that's what captive specimens held by Turner fed on. There are several species of small skinks found in the same area.

At birth the little whipsnakes are about 13 cm long, while adults seem to average little over 30 cm. Turner has noted that these snakes seem to be larger southwest of Melbourne, a fact he attributes to better habitat and more feed skinks (particularly *Leiolopisma entrecasteauxii*). Like most elapids they can be readily sexed by looking at the tail. Males have a bulging tail as opposed to the female's more tapering tail. According to Rawlinson (1965), females have 20–29 subcaudals, while males have 29–40. Certainly we had no trouble sexing the snakes we found.

As a rule these snakes were found sheltering under exfoliating rocks and rocks on the ground surface, not under well embedded rocks. They were often found between cracks formed in larger boulders. It is evident that in the cooler months these snakes effectively bask by sheltering under rocks exposed to maximum sunlight. Turner has noted that while some seem to stay put over winter months, others move from rock to rock. A pair located by us early in our day's search were later found to have moved elsewhere (were not found again) when the rock was lifted later the same day. Meanwhile, other snakes found early in the day did not move.

Some days earlier, and in another area, Valentic and Turner observed a single specimen diurnally basking or active. Such an observation is believed to be relatively rare for this species and may not have been previously documented. Specimens found tended to be coolish (in line with the weather) and made little if any attempt to flee. Most could be picked up without the snakes showing any offensive behavior. A few specimens became mildly pugnacious after repeated handling and adopted defensive postures and actions, usually in the form of thrashing about like a whip (hence their name!) One particular snake repeatedly bit at my leg, but its fangs failed to penetrate my trousers. In the event that a bite penetrates the skin, the effect is relatively mild due to the small amount of weak venom injected.

Turner found his captives to be hardy and trouble free pets. However due their small size, secretive nature and relative abundance (very common), few people seem to want to keep these snakes and even fewer do. In years following 1984 Turner has published a number of major papers on these snakes in *Herpetofauna* (some cited by Hoser [1990; 1998]), noting a number of "discoveries" for the species. He was also the first to record male combat (Turner, 1992), which it turns

out is fairly routine in this species and most likely for all snakes in the genus. Mating behavior in little whipsnakes appears to follow a similar pattern to that documented for most other elapid snakes, including death adders (Turner, 1992; Hoser, 1983).

Getting back to our day on the basalt, it took just a few hours of searching, by lifting up loose rocks, to find a total of 23 little whipsnakes. That's a good total of snakes for any part of the world and proves that all is not bleak in the colder parts of Australia. This time frame also included long stops for Rob and I to take photos, while Grant had to meticulously record details. This makes the total even more striking. Furthermore, while the number was marginally higher than to be expected, it wasn't all that extraordinary.

Or let me ask, how many North American readers could find 23 snakes in just a few hours searching such a short distance from home. My own suburban Melbourne house is about 20– 30 minutes drive from where we were. Turner was only about 15 minutes from the area, while Valentic lived somewhere in between.

Of the snakes we found, five were juveniles (3 males, 2 females). Of the adults, 10 were male, 8 female. We found some under rocks in pairs (same sex and opposite sex) and in one instance a trio. All these finds are typical for the species. It is believed that little whipsnakes mate in the cooler months, a fact which partly explains the pairing behavior of the snakes. Some of the pairing/aggregating behavior may simply arise from more than one snake utilizing an optimal site. When caught, these snakes are known to release a fluid with a pungent odor, but on this day, I don't recall this happening, but perhaps I should also note that my sense of smell is somewhat deficient (a result of having had my nose broken several times). The relative coolness/inactivity of the snakes may have also had something to do with the relative lack of defensive behavior.

In a large rock outcrop adjacent to a creek we found two adult Cunningham's skinks (*Egernia cunninghami*). The local specimens are of the typical highland form seen from about Mudgee in the north, throughout southeastern New South Wales and most of Victoria. I presume those from South Australia are similar, but haven't actually seen them. Other forms of Cunningham's skinks from the New England Tableland and Sydney region are pictured in my book *Australian Reptiles and Frogs* (Hoser, 1989). And yes, most people including myself, recognize them as different subspecies.

Some small brown froglets (*Ranidella signifera*) were heard calling in swampy ground adjacent to a creek. As mentioned earlier, these small frogs are common throughout southeastern Australia and breed almost anywhere. They can sometimes be found breeding in the smallest of puddles. We also located four adult spotted marsh frogs (*Limnodynastes tasmaniensis*). This is another of those frogs found throughout southeastern Australia. Some specimens have a distinct vertebral stripe, while others seem to lack it. There are some that appear intermediate in color. We found specimens with distinct stripes and others without. In some places only one or other form occurs. When driving home (to Melbourne) from Geelong some months earlier we saw huge numbers of these frogs crossing the main Princes Highway near Little River (Lara). Many were squashed by traffic. All the specimens we found had a distinct vertebral stripe.

Spotted marsh frogs are also a major food item for other snakes known from the basalt areas. Local frog-eating species include red-bellied black (*Pseudechis porphyriacus*), tiger (*Notechis scutatus*) and copperhead (*Austrelaps superbus*). All are large, highly venomous elapids. All are of widespread species and all are believed to have declined in numbers in many areas in recent years for reasons that are not entirely certain. The red-bellied blacksnake has probably always been the least common large elapid in the basalt areas north of Melbourne. None have (to my knowledge) been sighted in recent years, although local Craigieburn herper Craig Stephenson saw one in the area many years ago. There are a few other reliable records. Tiger snakes have also declined in the area although they remain common in Melbourne's southwest. Copperhead numbers, while reduced, are still large enough to make them a regularly encountered snake. Although we never saw large elapids, Rob and Grant found a copperhead a few days earlier at another location a few kilometers away. I've also picked them up at Whittlesea, a hilly area about 10 km to the north of where we were.

Eastern brown snakes (*Pseudonaja textilis*) are another species common to the basalt plains habitat. In some areas, their numbers are probably on the increase. Although we saw none on this occasion, they are common in similar habitats to the west of Melbourne and no doubt occurred in the area. Previous excursions to basalt habitats have yielded this species, including small aggregations. These snakes differ in many respects from their Sydney cousins and may ultimately be treated as subspecies, assuming the differences not to be clinal. Melbourne specimens don't grow as large or thick-set as their Sydney counterparts and more commonly have a small number of single subcaudals at the anterior end of the tail as opposed to none in Sydney specimens.

Eastern brown snakes feed largely on rodents and therefore thrive near areas of human habitation and agriculture, where rodent numbers are high. Human rubbish such as tin (that habitat made for reptiles), is also red-hot for brown snakes and they take to it with a vengeance. Besides feeding on rodents, brown snakes also feed on other reptiles. To what extent is not really known. Rob Valentic published a paper (Valentic, 1996) detailing a case where an eastern brown snake fed on a bluetongue lizard (*Tiliqua scincoides*). This paper appears to be the first published report of such an event. However recently I spoke to a man who had a property in Western Victoria where he claimed he routinely saw eastern brown snakes feeding on bluetongues or gorged from having fed on such lizards. The man had been in the area for over 40 years. He also claimed to have seen an adult brown snake feeding on young specimens of the same species adjacent to a hole on a riverbank. Captive juveniles that I kept were always fed skinks, which they took readily.

It's also known that Adelaide bluetongue skinks (*Tiliqua*

adelaidensis) from South Australia are eaten by eastern brown snakes. Some years ago I had a subadult eastern bluetongue feed on a young eastern brown snake in the same cage (Hoser, 1996). In other words the feeding of one reptile species on another doesn't always go one way!

Blotched bluetongues (*Tiliqua nigrolutea*) generally are not found on basalt plains, but there are a few isolated records. There is little doubt also that specimens have been released in these areas over the last 50 years by various people, potentially confusing things for those who may later find them. Blotched bluetongues are more common in the hills east of Melbourne and parts of the Mornington Peninsula to Melbourne's south-east.

Two other species of snakes known from Melbourne, the small-eyed snake (*Rhinoplocephalus nigrescens*) and the white-lipped snake (*Drysdalia coronoides*) seem to be rare in the basalt plains habitats, but are occasionally found here. White-lipped snakes are common to Melbourne's east, northeast and southeast.

Small-eyed snakes are effectively uncommon around Melbourne, but are more common in the rocky hills around Lake Eildon about 90 minutes drive northeast of the city. Four species of small skink were encountered during our outing, although more species are known from the area. We found seven *Lerista bougainvillii*. These small fossorial skinks with reduced limbs are possibly a dominant food source for the little whipsnakes as they are the right size and live in the same places. Six of the seven seen were adults, while one was about two-thirds grown. Like most, if not all of the reptiles seen on this day, they were found sheltering underneath basalt rocks.

We saw three grass skinks (*Lampropholis guichenoti*), all of which were adults. This tiny lizard is perhaps the best able to adapt to human habitation and urbanization. Around Melbourne it lives in most suburbs, provided there is sufficient ground cover in the form of rocks, logs and so on, although as already noted, in Melbourne, numbers are never as great as in the more northern cities of Sydney and Brisbane. Houses with overgrown and rocky gardens or with heaps of rubbish tend to be the best places to find these lizards. Little whipsnakes readily feed on them in captivity.

Southern water skinks (*Eulamprus tympanum*) are common in the area and we found four adults and a juvenile. While the adults are too large for little whipsnakes to eat, the juveniles are a distinct possibility. Likewise for striped skinks (*Ctenotus robustus*). We saw three adults and a juvenile.

There appears to be a seasonal shift in the movements/locations chosen by the water skinks in the area. In winter (including on the day of our outing) we found these lizards sheltering under rocks on relatively high ground and some distance from the main creek and/or other water bodies. A return trip to the area by myself in mid November when the weather was somewhat warmer (by an average max of about 6°C), the water skinks tended to be seen active immediately adjacent to the Merri Creek, with none being seen on the higher ground where they'd previously been. This was a movement of about 100 m, and from some of the highest to lowest ground in the area. Shine (1991) and I have noted similar seasonal movements by diamond pythons (*Morelia spilota*) in gorges near Sydney, over much greater distances.

Besides herps we saw other wildlife in the form of birds (none of which I identified) and a feral goat. These along with other feral animals such as rabbits, hares, foxes and cats have all done their bit to wipe out Australian fauna. Besides the usual collection of insects, centipedes and so on found under rocks and other cover, we located a number of interesting spiders, including one that looked like a funnel web (*Atrax* sp.) Centipedes were particularly common in this area. Although they may look fearsome to some, they are actually very innocuous and I have never heard of anyone being attacked by one. Using a snake bag I was able to pick these animals up without being bitten. However I should warn that they can pack quite a bite. Three were placed inside a cloth snake bag. Within short time, they were able to chew a hole in the bag and escape. Fortunately this had been anticipated and the bag itself had been placed in a glass jar.

The water in the creeks looked muddy and polluted, but must have been fairly clean as we had no trouble finding a small yabbie (freshwater crayfish). These only appear to survive in unpolluted waters. It is for this reason that yabbies are rarely seen in urban areas.

Two relatively rare reptiles from the basalt habitat weren't seen on our trip. These were the earless dragon (*Tympanocryptis lineata pinguicolla*) and the striped legless lizard (*Delma impar*). We didn't expect to see either, but Rob and Grant always had their eyes open for them. Both were never as widespread and common as other basalt plain species. Both have declined sharply in recent years, from a low (known) population base for reasons that are not entirely clear.

The cause of decline in earless dragons is particularly hard to pinpoint. While a number of known localities such as Keilor in Melbourne's northwest have been urbanized, other historical localities still seem to have decent habitat. It is thought feral animals, particularly foxes and cats, in combination with rock removal by graziers could be the major causes of decline (Cogger et al., 1993). A known locality for this species (Merri Creek, at Bald Hill, north of Donnybrook) was not far from where we were. Brereton and Backhouse (1993) presented a summary of the status and known localities of the species and painted a fairly poor long-term picture for the species in Victoria. Osborne et al. (1993) painted a similarly bleak picture for the lizard in the northern parts of its range, near Canberra.

For the legless lizard *Delma impar*, it is thought that a general reduction in native grasslands through urbanization and introduced weeds has been the principal cause of decline. However this theory is not yet a certainty. In the area where we searched there is a single record for *Delma impar*. The exact rock where the lizard was found was shown to us by Grant Turner. It turned out to be a wholly uninspiring piece of basalt rubble on a terribly degraded hillside. The find was some years earlier, but the habitat was the same then.

Studies on *Delma impar* near Melbourne have found these

lizards to be most common in the southwestern suburbs near Laverton and Deer Park. The preferred habitat seems to be basalt plains with native grasses. Some of the best habitat for this species has recently been built on as part of an industrial development and adjoining residential estate. In another promising site near Ardeer, Grant Turner found three specimens a few years ago. The area is now covered in suburban houses. Of the known localities for the species, only one is within a reserve. Other reserves in Victoria are thought unlikely to have this species due to apparently unsuitable habitat (Cogger et al., 1993).

Although Melbourne Zoo holds a few *Delma impar*, these lizards are not really suited for public displays due to their small size and secretive nature. There is in practical terms, no realistic long term plan for the conservation of this lizard. The Victorian Wildlife Department (DNR) has however commissioned some useful studies into this lizard, including Coulson (1990) and Moro (1990). Ideally these lizards should be held in private hands in captivity and legally traded. That way their long term survival can be probably guaranteed.

Dale Gibbons, a Bendigo (Victoria) - based herper found large numbers of *Delma impar* in roadside habitat with granite substrate near his home. He later recalled: "The Wildlife department didn't want to know about it. . . . They seemed to want the species to be rare so that their own existence was justified."

On the basalt plains to the southwest of Melbourne, most reptiles seem to carry mites of the same form that plagues some reptile collections. Although these mites don't seem to adversely impact on the wild reptiles, no studies have yet been done. In fact it isn't even known if these mites are natural to Australia or have been inadvertently introduced by humans at some time in the past. In most other parts of Australia, snake mites are rarely seen on reptiles. Mite infestations are worst at the end of winter and least in summer, presumably in reflection of the reptiles' movements.

Basalt Plains and Herps—The Future

While we were searching on the open, windblown plains we remained in constant sight of large factories to the south and west. According to Grant Turner, those to the south at Campbellfield were all new and had only been built within the least six years. Before they were built, Turner had caught snakes and other reptiles on the same land. They would now be gone. While there were no immediate development plans for most of the site we inspected, Turner expected it to suffer a similar fate sometime in the future.

And yes, in the six years since that day on the basalt plains, the factories have extended their presence along Sydney Road, which runs along the western periphery of where we were hunting. A few new roads with yet more industrial subdivisions have also been cut directly into the chunk of habitat we were finding our snakes and lizards on.

As Melbourne continues to grow and urbanization expands in every direction, further habitat on the basalt plains will become subjugated by the suburban sprawl. At this stage, the wildlife authorities have no plans to allow large-scale collection of reptiles from the areas being desecrated. A further problem (not of the wildlife department's making) is that there would probably only be limited demand for the snakes and other reptiles in these areas anyway, with potential supply far exceeding demand. In other words the prognosis for individual reptiles in areas of new development on Melbourne's fringes is bleak and likely to remain so.

With the exception of the earless dragon and *Delma impar*, the reptiles and frogs of the basalt plains are reasonably widespread, common and found in many parts of Victoria. None is likely to be threatened in the foreseeable future (except for possible local extinctions caused by urbanization, local intensive agriculture, etc.).

While none of the reptiles and frogs seen on our day on the basalt were earth-shattering by herpetology standards, this is in itself part of the beauty of our experience. You see, any herper who happens to be in Melbourne at the cooler times of year can take a 20-minute drive from the city center to the northern edge and do pretty much the same thing and find pretty much the same number of herps. For those not from Melbourne, it's also likely that the species seen will be unfamiliar and therefore heighten the experience.

A Night on the Basalt

Just an add-on for the interest of readers. On 30 November 2003 at 1 A.M. I got a phone call. OK, I was about to have sex with my wife. . . . It was a Chinese lady on the line stressing out about a huge black snake in her house. After driving across Melbourne to the suburb of Broadmeadows, I arrived to see the husband and wife standing on a table and pointing at a large red-bellied blacksnake (*Pseudechis porphyriacus*). As a licensed Melbourne snake removalist ("Snakebusters"), I get this sort of call all the time, but dealing with the likes of aggro brown and tiger snakes; this one was a pleasurable change.

While most snakes have some flexibility in terms of whether they are nocturnal or diurnal, red-bellied blacks do not. They never move at night and this one was no exception. As they pointed at the snake with the torch it steadfastly refused to move an inch. Why? I assume it didn't like the idea of wandering off into the dark. Who knows, maybe it was scared of the dark? Using a hook, I merely picked up the snake off the ground and it curled around it like a captive, before being dropped into an open box.

Now as to where the snake came from I don't know. You see, red-bellied blacks are rare in Melbourne and most of the specimens caught are found in areas that these snakes (or any others) simply don't live in. This was one such case. While located on the basalt plains in Melbourne's north, this part of Broadmeadows was next to the shops and railway line and there was no nearby habitat remotely suitable for the snake.

As are most red-bellied blacksnakes that turn up in Melbourne, it was probably one that had hitched a ride in. You see, occasionally these snakes (and others) crawl into cars and their engines and then travel some distance before either escaping or being found by an irate motorist. Most red-bellied

blacks seem to come down from either near Sydney or eastern Victoria.

Earlier in 2003 I got a tiger snake (*Notechis scutatus*) that had set up shop under a car bonnet and wouldn't move out. After a week of putting up with the snake, the owner of the car, who by that stage had driven around Melbourne several times, phoned me and asked me to get the snake out. For those unaware, tiger snakes are by far the most widespread and common snake in Melbourne.

Returning to the red-bellied blacksnake, there were other interesting facts about it. It was a huge, 150-cm female and gravid. She was covered in mites and small ticks, but then many Melbourne snakes are. The snake appeared to be a Victorian specimen (based on the relative lack of brown on the snout). In other words, I was unable to determine if the snake was in fact a local that had somehow managed to cross a suburb or two before being detected (yes this happens), or an animal that had hitched a ride in from somewhere, or perhaps even a lost pet.

A week or so earlier I had been dragged out of bed in the middle of the night to visit a house in Deer Park to catch a brown snake (*Pseudonaja textilis*) that was under the sink in the kitchen. This outer western suburb is on the basalt plains and brown snakes are a feature of them. This snake was obviously a local.

The next day, I watched the TV news to see that I wasn't the only person with an interest in that area that night. The local wildlife department (now calling themselves the "Department of Sustainability and Environment" or DSE) had raided a person and seized a load of boa constrictors and other illegally held non-native reptiles.

A week later another snake catcher had an interesting night on the basalt when in nearby Maribnong he was called to catch a large boa constrictor that scared the living daylights out of the local residents.

Night Drives in Melbourne?

Forget it, all local species are mainly diurnal. Even the little whipsnake (*Unechis flagellum*) appears to be mainly diurnal. It's just that it stays under cover. But it's in the really hot weather that the snakes turn up at night and people call me to catch them. Usually during the day, when things really heat up, the snakes move into the coolest spot they can find. This may be inside a house. The snake is then unable to get out and then it merely becomes a matter of time before it's detected and a snake catcher like me gets the call.

Murphy's law being what it is dictates that they tend to turn up at dinner time, the middle of the night and so on. As for when people are likely to call me to collect a snake from their homes, I get asked that question all the time on local radio. The announcer expects me to answer with something like, "er, on a sunny day in spring" or similar, but instead I say it as it is—"at the following times, when I am on the toilet, when my wife and I are about to have sex, or when I am out of town."

Are They All Babies?

I won't diverge here into my tales of woe as a licensed snake catcher, but some of them are a real scream, especially to us enlightened herpers. But one fact I'll share with you is how almost all the snakes seen by people in Melbourne are only babies. For example, tiger snakes grow to about 1.5 m. Anything larger is "huge." And yet when people call me to collect a 1.7-m "whopper" they tell me "er, it's only a baby".

Now where do they get this idea? I've worked it out. They see all these terrible U.S. TV shows with people playing with 5-meter Burmese pythons and then assume that all snakes get that big. Hence when they see a 1.7-meter snake, they assume it must be a baby!

To be continued

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Book Review: *Amphibians and Reptiles: Status and Conservation in Florida*

edited by Walter E. Meshaka, Jr., and Kimberly J. Babbit
2005. 318 pp., 41 figures, 44 tables, 37 contributors.
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This sturdy, well bound book brings together 25 papers on the status and conservation of the herpetofauna of Florida, followed by a synthesis of the data from these publications and a lengthy appendix listing the amphibians and reptiles of each county in the state. Of the 37 contributors to the book, 28 of them presently live in Florida.

The major divisions of the book (Parts I– VI) are: I. The Florida herpetofauna (in a changing environment); II. Habitat loss, alteration, and fragmentation and the Florida herpetofauna; III. Public lands and the Florida herpetofauna; IV. Commercial harvesting and the Florida herpetofauna; V. Exotic species and the Florida Herpetofauna; and VI. Synthesis.

In Part I, W. E. Meshaka, Jr., and R. E. Ashton, Jr., sum up "The Florida Herpetofauna in a Changing Environment." Among other topics, they present a list of the native amphibians and reptiles of Florida (subspecies not included) that comprises 26 species of salamanders, 28 frogs, 27 turtles, 16 lizards, one amphisbaenian, 43 snakes and 2 crocodilians. In contrast to this, exotic amphibian and reptile species in Florida (Meshaka et al., 2004) consist of 4 anurans, one turtle, 32 lizards, 2 snakes, and one crocodilian. Other than the amazing number of exotic lizards, I was surprised at the small number of other exotic amphibians and reptiles in the state. I was disappointed that the discussion on the origin of the Florida herpetofauna in time and space in Part I [mainly based on Auffenberg (1982) and Meylan (1982, 1984)] was only three paragraphs long.

The introduction to Part II suggests that the most pervasive problems confronting the amphibians and reptiles of Florida are habitat alteration and loss. To address some of these problems, papers are included on "Human Disturbance and Florida Anurans" by P. R. Delis and H. R. Mushinsky; "Herpetofauna of Impacted Wetlands in East Florida: A Pre-augmentation Assessment" by R. C. Means and R. Franz; "Roads and Florida's Herpetofauna: A Review and Mitigation Case Study" by L. L. Smith, K. G. Smith, W. J. Barichivich, C. K. Dodd, Jr., and K. Sorensen; "The Potential Impact of Pesticides, Heavy Metals, and Growth Regulators on Florida Amphibians" by F. Punzo; "The Impact of Agriculture on Temporary Wetland Amphibians in Florida" by K. J. Babbitt, M. J. Baber and G. W. Tanner; "Effects of Sand Pine Silviculture on Pond-breeding Amphibians in the Woodville Karst Plain in North Florida" by D. B. Means and R. C. Means; "Natural History and Status of the Flatwoods Salamander in Florida" by R. E. Ashton, Jr., and P. S. Ashton; "The Value of Dead Tree Bases and Stumpholes as Habitat for Wildlife" by D. B. Means; "Chaos and Continuity: The Role of Isolated Ephemeral Wetlands on Amphibian Populations in Xeric Sand Hills" by C. H. Greenberg and G. W. Tanner; and "Conservation and Life History of the Striped Newt: The Importance of Habitat Connectivity" by S. A. Johnson.

Part III (Section A) relates to uplands, and four of the most interesting Florida reptiles in this habitat. Papers on this subject are "The Conservation of Box Turtles on Public Lands in Florida" by C. K. Dodd, Jr., and M. L. Griffey; "Planning Gopher Tortoise Conservation into the Future" by R. E. Ashton, Jr.,; "Up Close and Personal: A Glimpse into the Life of the Florida Pine Snake in a North Florida Sand Hill" by R. D. Franz; and "The Decline and Extirpation of the Kingsnake in Florida" by K. L. Krysko and D. J. Smith.

Part III (Section B) deals with wetlands and American alligators and larval frogs in Florida. Papers on this subject are "Status of the American Alligator in Southern Florida and Its Role in Measuring Restoration Success in the Everglades"

by K. G. Rice, F. J. Mazzotti and L. A. Brandt; and "Relationships among Habitat Type, Hydrology, Predator Composition, and Distribution of Larval Anurans in the Florida Everglades" by M. J. Baber, K. J. Babbitt, F. Jordon, H. L. Jelks and W. M. Kitchens.

Part III (Section C) deals with the topic of Florida rivers and turtles in a paper on "Florida Rivers and Turtles: An Interdependence" by D. R. Jackson.

Part III (Section D) focuses on estuarine systems and reptiles in a paper on "Insular Ecology of the Florida Keys Reptiles" by B. K. Mealey, G. M. Parks, M. A. Perez, J. D. Baldwin and M. R. J. Forstner; and "The Diamondback Terrapin in Florida Bay and the Florida Keys: Insights into Turtle Conservation and Ecology" by J. D. Baldwin, L. A. Latino, B. K. Mealey, G. M. Parks and R. J. Forstner.

Part IV is concerned with commercial harvesting of Florida amphibians and reptiles. Papers on that subject are "Alligator Harvest in Florida" by T. Hines; "Commercial Harvest of Amphibians and Reptiles in Florida for the Pet Trade" by K. M. Enge; and "Florida's Commercial Trade in Rattlesnakes and Possible Conservation Strategies" by K. M. Enge.

Part V focuses on exotic herptiles in Florida in the form of a discussion of "The Knight Anole: Ecology of a Successful Colonizing Species in Extreme Southern Mainland Florida" by W. E. Meshaka, Jr., and K. G. Rice; and "The Introduction of Hemidactyline Geckos in Florida: Colonization and Impact on Native Fauna" by F. Punzo.

Part VI is a synthesis of individual chapters of the book. This synthesis mainly revolves around the habitat loss and alteration produced by the overpopulation of humans and their destructive activities. I have one comment to make at this point. The present volume focuses mainly on wetlands. Many of Florida's small, poorly-known reptiles are restricted to tracts of xerophytic habitat that obviously reflect climatic and topographic changes that occurred during the Pleistocene and Holocene. Hopefully these relict places will be studied and conserved before they blow away.

The figures and tables in this book are very well done. They are large enough to be seen by the naked eye and most of them are simple enough to understand without having to call in a colleague. This will make the book very popular with the readership. The Literature Cited section provides abundant references that consist of about 980 papers. The individual county lists will be very welcome by all who either live in Florida or migrate down their from time to time. I highly recommend this book to the membership of the Chicago Herpetological Society as well as the herpetological community in general.

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Bull. Chicago Herp. Soc. 41(4):78, 2006

A Short Note on the Appearance of *The Amphibian Tree of Life* by Darrel R. Frost and Eighteen Other Authors

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WHEN I heard the learn'd astronomer;
When the proofs, the figures, were ranged in columns before me;
When I was shown the charts and the diagrams, to add, divide, and measure them;
When I, sitting, heard the astronomer, where he lectured with much applause in the lecture-room,
How soon, unaccountable, I became tired and sick;
Till rising and gliding out, I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars.
(Whitman, W. 1900. "Leaves of Grass")

The Amphibian Tree of Life is a truly a monumental attempt to establish a new taxonomy of the living amphibians of the world and " . . . to correct the deficiencies of the old one" (Frost et al., 2006, p. 8). The new taxonomy is based on " . . . the largest phylogenetic analysis of living Amphibia so far accomplished" (Frost et al., 2006, p. 8). To do this analysis, the authors combined the anatomical evidence of Haas (2003) with their own comparative molecular data, and then marshaled a parsimony analysis to establish the relationships between modern amphibians at all taxonomic levels. This has established a plethora of new names, most of them at the intermediate taxonomic level, but also at the generic and specific level.

Many paleoherpetologists think that an amphibian phylogenetic analysis, especially one that provides scientific names for intermediate taxonomic levels, cannot be justified at this time. This is because of the dearth of ancient fossil amphibians related to frogs, salamanders and caecilians (see articles in Heatwole and Carroll, 2000). Some herpetologists will complain about the lack of morphological characters employed in the study; others will claim that the "old taxonomy" is sufficient.

One thing that surprised me was the fact that several outstanding amphibian scholars such as Robert Carroll, William Duellman, Richard Highton, Andrew Milner, Linda Trueb, David Wake and others were not among the authors of this publication.

Because of the questions that will be raised about the methodology used and the number of taxonomic changes that were proposed, there should be an explosion in the literature about amphibian relationships, especially among herpetologists currently studying small amphibian groups. This will be a healthy response. What I hope will not happen is that a substantial number of herpetologists will either blindly accept these changes or stoically reject them.

Despite the refreshingly simple title, the bulletin itself is far from simple. About as much as can be packed into a 370-page technical paper is crammed into this one. The major divisions of the bulletin are as follow: Abstract; Materials and Methods; Review of Current Taxonomy, the Questions, and Taxon Sampling; Comparability of Systematic Studies; Amphibia; Gymnophiona; Caudata; Anura; "Primitive" Frogs; "Transitional" Frogs; "Advanced" Frogs; "Hyloidea"; Ranoidea; Results; and A Taxonomy of Living Amphibians, a division that takes up 107 pages and is the heart of the book.

The appendices take up take up 78 pages and contain highly technical information substantiating the materials and methods used in the study; nomenclatural notes; and new and revived combinations and clarifications regarding taxonomic content. There are 63 cladograms scattered throughout the publication, many of them with the names produced in very small print. Appended at the very end is a "grand cladogram," which many of us will have to study with a hand lens. The large number of references (pp. 257-291) will prove to be invaluable for the modern amphibian biologist.

Acknowledgment

I wish to thank James H. Harding for sharing his thoughts with me about this publication.

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Bull. Chicago Herp. Soc. 41(4):79-81, 2006

HerPET-POURRI

by Ellin Beltz

Beer for Toads

The Story from Australia's *Northern Territory News* (March 20, 2006) wherein a beer bounty for cane toads was offered prompted one of my marvelous super-contributors to muse of times past: "[The story] reminds me of spring of 1995, when I was serving as a peacekeeper in Croatia. My garrison was situated near a woods that was a home to fire salamanders (*Salamandra salamandra*) most of whom had to trot (slowly) through our camp, spring and fall, on their way to-and-fro the breeding and hibernation sites. The locals had previously identified these salamanders to the multinational peacekeepers as the equivalant of ` venomous vermin,' and my peers had been warned that the fires were absolutely dangerous. By the time I got to the camp for my tour, soldiers wearing blue berets had been stamping caudates flat on the camps' roads for over three years. I immediately started an education campaign in the various messes (soldiers clubs) about the local herp wildlife, and emphasized that the omnipresent fire salamanders and sometimes seen glass lizard were in fact harmless and both deserving of our protection. To emphasize the value of the migrating amphibians, I put up a bounty of a bottle of Heinekens for each fire salamander turned into the Intelligence trailer. (My staff by this time were well used to my idiosyncrasies). Later, the bounty was offered on the honor system; if you moved a fire off of the road or out of the vehicle compound, the beer would appear. After two months, the Canadians and Czechs were moving the by-then-infrequently-seen fire salamanders out of pits and trenches without benefit of beer! (The Argentineans were still having problems handling the sudden appearance of glass lizards from within the collapsed buildings on their side of the camp they were convinced that the critters were not only venomous, but had supplemental stings in their tail!) So, while the intentions of our (mine and Australia's) two beer-bounties are completely at odds, it does go to show that, at least with young male herpers, a proper education and modest incentive program can have significant effects. Cheers all, Wes von Papineäu." [To see the stunning scenery inhabited by these critters, visit http://www.club100.net/reports/bh_croatia2005.html, a trip through Croatia, now.]

Cane Toads nearing W.A.

The fourth known cane toad captured in Western Australia was captured aboard a fruit truck from Queensland in Kewdale, the same suburb where others we found last year. In a separate incident, another toad or toads was found in the suburb of Canning Vale. Both towns are slightly south and southwest of Perth. Cane toads are reportedly only 120 kilometers away from the Northern Territory – Western Australia border as well as in New South Wales and Queensland. Some practical comments from the Kimberley Toad Busters website: "Over an evening of Toad Busting (two runs down the highway south between the Victoria Road House and the Victoria River Road House) the results suggest that toads are making their way up to the Victoria Highway from the Victoria River via erosion areas. All these erosion areas lead to culvert systems put in place by Main Roads. Toad ` road kills' on the highway recognized that the culverts play an important role in determining the movement of toads from the river to the road and other areas. The number of toads found in the CALM traps (a total of 52) indicate that these traps are gong to play an important role in keeping the cane toad front and the identified cane toad inclusions under control. Our objective is to prevent the toad front from moving and to also ` wipe' new generations of cane toads. The combinations of cane toad trapping and the toad busting efforts by Community will ensure that this program succeeds. Bycatch is still an issue both the Kimberley Toad Busters and CALM still need to confront. Toad ` splatters' (not to be confused with ` kills') endorse the need to put traps near road culverts. The toad splatters represent those toads that did not manage to elude vehicle activity down the Victoria Highway and barely represent identifiable toad remains. A total of about 70 toad splatters were identified and the concentrations of these were always located near culverts. This tends to enforce the need to place traps near culverts along the highway. Our Kimberley Toad Busting Team has been able to confirm that the Brumby Creek system, south of the Fitzroy Station turn-off, is probably the westernmost incursion of cane toads along the Victoria River Road. This hopefully confirms that our Kimberley Toad Busting group has a definite handle on where the cane toad front incursions will establish themselves for the 2006 dry season. . . . Nobody is too young or too old in this fight to stop the cane toad from crossing into Western Australia. If you don't have a vehicle we can always find a seat on the Triple J Toad Busting Bus." [From "A Heartfelt cry from the Kununurra Community," http://www.canetoads.com.au/ March 31, 2006] Kimberley is the little bump at the northern end of western Australia. The toads have hopped and hitched around since their introduction on the east coast in 1935.

Can't beat 'em, breed 'em

The red-eared slider, *Trachemys scripta elegans*, is a threat to Florida's native turtles. Of greatest concern is its potential to interbreed with and genetically swamp our native subspecies, *T. scripta scripta*, the yellow-bellied turtle. The latter is native throughout northern Florida, where we have already observed the results of hybridization with introduced red-ears. Although the red-ear is becoming increasingly common in the Florida peninsula, its distribution in northern Florida (panhandle) is not yet widespread. Drs. Matt Aresco, Peter Meylan, and I therefore petitioned the Florida Fish and Wildlife Conservation Commission last August to prohibit the sale, distribution, and release of red-ears in Florida. We have now learned that Commission staff has not appreciated the urgency of this issue and is planning to delay action so that no new rule, if enacted, would take effect before 2008. During this time, hundreds of thousands of red-ears could be sold in the state, with most survivors likely to be released eventually after their owners grow weary of them. Please consider writing to the Director of the Commission in support of immediate regulations to end the sale, distribution, and release of red-ears within a state where another subspecies is native. Address

your e-mail to: Mr. Ken Haddad, Director: < ken.haddad@myfwc.com> Please send a copy to the correspondent, Dale Jackson, Ph.D., Tallahassee, Florida < jacksondaler@aol.com> . His letter was sent by Allen Salzberg, April 2, 2006.

Toadies go home!

Tanzanian Kihansi spray toads taken to the U.S. three years ago for breeding have produced over 200 offspring being prepared for repatriation. The Wildlife Conservation Society and other U.S. zoos may help the Tanzanians set up their own facility. The source, *Jet Magazine* of Africa [March 27, 2006] asked an interesting question: "The government initiated LKEM in 2002 with the financial assistance from the World Bank. On why the government has been spending huge sums of money on preserving the spray toads, while millions of people are suffering from poverty and hunger, Dr Sarunday defended the project saying the preservation of the ecosystems of rare species was necessary for future survival of fauna and flora. `While many species of flora and fauna may appear to have no consumptive value today for humanity, the same species may prove to be extremely useful in future with the growth of biotechnology, especially in the pharmaceutical industries,' he said." Note that very few people notice that "setting up a breeding facility" means "jobs" and "rare frogs" means "tourists" which means "more jobs." It's like all the people with cell phones who complain about the space program. There's no place to spend money in space, of course and frogs don't need it either—so anything spent on research only pays humans.

New Catalog Pages

The Center for North American Herpetology in Lawrence, Kansas (http://www.cnah.org) announced on 27 March 2006 that "The *Catalogue of American Amphibians and Reptiles*, sponsored by the Society for the Study of Amphibians and Reptiles, recently issued twenty new accounts for 2006, one of which pertains to North America (north of Mexico). It is: *Plethodon angusticlavius* Ozark Zigzag Salamander by Meshaka and Trauth, CAAR 804. Copies can be ordered from the SSAR (check elsewhere on the CNAH web site under Herpetological Societies: National at: http://www.cnah.org/societies.asp?id= 4)"

A Paper to Upset the Amphibian Cart

Darryl Frost and many others have issued a paper [2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297:1-370] in which major changes to taxonomy of North American amphibian species are recommended. The list is courtesy of The Center for North American Herpetology. [Editor's note: The substantial nomenclature changes listed below are only a fraction of those proposed in this paper, which is worldwide in scope. For more on the ramifications of *The Amphibian Tree of Life*, see the note by J. Alan Holman elsewhere (p. 78) in this CHS *Bulletin*.]

(1) The Family Dicamptodontidae (Tihen, 1958) is synonymized with the Family Ambystomatidae (Gray, 1850).
(2) The genus *Haideotriton* Carr, 1939, is synonymized with the genus *Eurycea* Rafinesque, 1822, resulting in the new combination *Eurycea wallacei* (Carr, 1939).
(3) The Family Ascaphidae (Fejérváry, 1923) is synonymized with the Family Leiopelmatidae (Mivart, 1869).
(4) As part of the partitioning of the genus *Eleutherodactylus*, the genus *Syrrhophus* (Cope, 1878) is resurrected and, along with the genus *Craugastor* (Cope, 1862), is placed in the Family Brachycephalidae (Günther, 1858), as follows:
**Craugastor augusti* (Dugès, 1879)
Craugastor augusti cactorum (Taylor, 1938)
Craugastor augusti latrans (Cope, 1880)
Syrrhophus cystignathoides (Cope, 1877)
Syrrhophus cystignathoides campi (Stejneger, 1914)
Syrrhophus guttilatus (Cope, 1879)
Syrrhophus marnockii (Cope, 1878)
(5) Partitioning of the genus *Bufo* worldwide results in the recognition of three genera of these anurans in North America and Canada, as follows:
**Anaxyrus* Tschudi, 1845
Anaxyrus americanus (Holbrook, 1836)
Anaxyrus americanus americanus (Holbrook, 1836)
Anaxyrus americanus charlesmithi (Bragg, 1954)
Anaxyrus baxteri (Porter, 1968)
Anaxyrus boreas (Baird and Girard, 1852)
Anaxyrus boreas boreas (Baird and Girard, 1852)
Anaxyrus boreas halophilus (Baird and Girard, 1853)
Anaxyrus californicus (Camp, 1915)
Anaxyrus canorus (Camp, 1916)
Anaxyrus cognatus (Say in James, 1823)
Anaxyrus debilis (Girard, 1854)
Anaxyrus debilis debilis (Girard, 1854)
Anaxyrus debilis insidior (Girard, 1854)
Anaxyrus exsul (Myers, 1942)
Anaxyrus fowleri (Hinckley, 1882)
Anaxyrus hemiophrys (Cope, 1886)
Anaxyrus houstonensis (Sanders, 1953)
Anaxyrus microscaphus (Cope, 1866)
Anaxyrus nelsoni (Stejneger, 1893)
Anaxyrus punctatus (Baird and Girard, 1852)
Anaxyrus quercicus (Holbrook, 1840)
Anaxyrus retiformis (Sanders and Smith, 1951)
Anaxyrus speciosus (Girard, 1854)
Anaxyrus terrestris (Bonnaterre, 1789)
Anaxyrus woodhousii (Girard, 1854)
Anaxyrus woodhousii australis (Shannon and Lowe, 1955)
Anaxyrus woodhousii velatus (Bragg and Sanders, 1951)
Anaxyrus woodhousii woodhousii (Girard, 1854)
**Chaunus* Wagler, 1828
Chaunus marinus (Linnaeus, 1758)
**Cranopsis* Cope, 1875
Cranopsis alvaria (Girard in Baird, 1849)
Cranopsis nebulifer (Girard, 1854)
(6) Partitioning of the genus *Rana* worldwide results in the recognition of two genera of these frogs in North America and Canada, as follows:
**Lithobates* Fitzinger, 1843
Lithobates areolatus (Baird and Girard, 1852)
Lithobates areolatus areolatus (Baird and Girard, 1852)
Lithobates areolatus circulosus (Rice and Davies, 1878)
Lithobates berlandieri (Baird, 1859)

Lithobates blairi (Mecham, Littlejohn, Oldham, Brown and Brown, 1973)
Lithobates capito (LeConte, 1855)
Lithobates catesbeianus (Shaw, 1802)
Lithobates chiricahuensis (Platz and Mecham, 1979)
Lithobates clamitans (Latreille, 1801)
Lithobates clamitans clamitans (Latreille, 1801)
Lithobates clamitans melanotus (Rafinesque, 1820)
Lithobates grylio (Stejneger, 1901)
Lithobates heckscheri (Wright, 1924)
Lithobates okaloosae (Moler, 1985)
Lithobates onca (Cope, 1875)
Lithobates palustris (LeConte, 1825)
Lithobates pipiens (Schreber, 1782)
Lithobates septentrionalis (Baird, 1854)
Lithobates sevosus (Goin and Netting, 1940)
Lithobates sphenocephalus (Cope, 1886)
Lithobates sphenocephalus sphenocephalus (Cope, 1886)
Lithobates sphenocephalus utricularius (Harlan, 1825)
Lithobates subaquavocalis (Platz, 1993)
Lithobates sylvaticus (LeConte, 1825)
Lithobates tarahumarae (Boulenger, 1917)
Lithobates virgatipes (Cope, 1891)
Lithobates yavapaiensis (Platz and Frost, 1984)
**Rana* Linnaeus, 1758
Rana aurora Baird and Girard, 1852
Rana boylii Baird, 1854
Rana cascadae Slater, 1939
Rana draytonii Baird and Girard, 1852
Rana luteiventris Thompson, 1913
Rana muscosa Camp, 1917
Rana pretiosa Baird and Girard, 1853 (from Joseph Collins)

Online Resource and Opinion

"AmphibiaWeb announces state lists of amphibians for the United States. On the AmphibiaWeb home page (http://amphibiaweb.org/) click on ` country search.' Next click on North America, then on the United States, and you will see a clickable U.S. map (http://amphibiaweb.org/maps/geo-us.html). Click on any state for a state list. We solicit feedback on the state lists. Our lists are a work in progress and we ask for your help in making them accurate. If you have deletions or additions to the lists, please send them to the AmphibiaWeb manager, Tate Tunstall, at < tatet2@berkeley.edu> . A reference documenting the change would be helpful. Taxonomy of amphibians is currently in a state of flux. We are using a traditional taxonomy. Major changes have been proposed by Frost et al. (2006, Bull. Amer. Mus. Nat. Hist.) and advocated by CNAH. We advise caution. Virtually all recommended changes are subjective and optional. Stable taxonomies are in everyone's interest. A reasonable compromise would be to treat proposed new names for *Rana* and *Bufo* as subgenera, pending further review. Such a move would be perfectly acceptable, even to those who wish for strict phylogenetic taxonomies. Furthermore, AmphibiaWeb continues to recognize Ascaphidae and Dicamptodontidae, because these have been separated from sister taxa Leiopelmatidae and Amby-stomatidae for more than 100 million years and they are morphologically and biologically very different kinds of organ-isms. Watch for other reactions to the proposed name changes." -- David B. Wake, Department of Integrative Biology and Museum of Vertebrate Zoology, 3101 Valley Life Sciences Building, University of California, Berkeley, CA 94720-3160 [http://ib.berkeley.edu/labs/wake/wakelab.html - March 24, 2006]

Tadpoles rejoice!

Gotta love it! "Couscous, the dish of the Maghreb and of France's large immigrant population, has come in first for the first time in a poll of the nation's favourite dishes, beating roast chicken and *le steak-frites*." Also in the top ten, pizza and paella with not a frogs-leg to be seen on the list. [*The Guardian* (UK), April 2, 2006, from Wes von Papineäu]

Thanks to everyone who sent clippings this month! Please send more as there are not enough yet to make a whole column! Send to: Ellin Beltz, POB 1125, Ferndale, CA 95536 and wait about 30 to 60 days to see your name _____ here.

Herpetology 2006

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SEX DETERMINATION IN LEOPARD GECKOS

D. E. Janes and M. L. Wayne [2006, Herpetologica 62(1): 56–62] note that vertebrates may be subject either to environmental or genotypic sex determination. Sex is determined by incubation environment, or by the genetic contribution of parents, respectively. The selective advantage of one mechanism over the other is unclear and our understanding of the evolution of environmental sex determination (ESD) is obscured by the lack of description of the mechanism's genetic architecture. In this study, a reptile with environmental sex determination, the leopard gecko, *Eublepharis macularius*, was tested for a genotype × environment interaction (G× E) with respect to sex-determining response to incubation temperature. Five sires were each mated to five unique dams. The eggs from each sire/dam combination were randomly assigned to one of three incubation temperatures and resultant hatchling sex ratios were measured. Temperature and temperature × dam (sire) interaction significantly affected treatment group sex. The authors report a statistically significant effect of G× E on the offspring sex in *E. macularius*. G× E for ESD may provide an opportunity for evolution for different threshold conditions for sex determination in this ESD species.

RADIO-TRACKING LOUISIANA PINESNAKES

J. G. Himes et al. [2006, Herpetological Natural History 9(2): 103-116] report that the Louisiana pinesnake, *Pituophis ruthveni*, is an uncommon and poorly known snake that currently lacks federal protection. To learn more about the natural history of *P. ruthveni*, ten adults and one juvenile were studied by radiotelemetry during 1995–97 in north-central Louisiana. In addition, one adult and seven juvenile captive-bred individuals of *P. ruthveni* were released on the study site and studied by radiotelemetry during 1996–97. All snakes were usually present in mammal burrows year-round and were most frequently observed above-ground during late morning and mid-afternoon and during spring and fall. Native snakes moved longer distances and occupied larger home ranges than did repatriated snakes. Native snakes preferred the interiors of pine forests and pine plantations and repatriated snakes preferred the edges of pine plantations. Native and repatriated snakes frequented areas with an abundance of pocket gopher (*Geomys breviceps*) mounds, few trees, and an open canopy. *Pituophis ruthveni* depends on pocket gophers directly (as a source of food) and indirectly (by using pocket gopher burrows for shelter). Therefore, habitat selection by snakes appears to be largely determined by the distribution of pocket gophers. Based on short term survival rates, the results of this study indicate that repatriation may be used to restock natural populations of *P. ruthveni*. However, the long-term survival of *P. ruthveni* will ultimately depend on the maintenance of an understory of herbaceous vegetation that supports pocket gophers (as a food source) and, in turn, pine snakes.

HATCHLING GOPHER TORTOISES

D. A. Pike [2006, Copeia 2006(1):68-76] notes that movement and activity patterns are important aspects of the ecology and conservation of any organism. Among turtles, data on the behavioral ecology of hatchling stages are lacking. The author tracked 20 hatchling gopher tortoises (*Gopherus polyphemus*) for up to 335 days after hatching to determine movement patterns, refugia use, microhabitat use, and home range size. Consistent with other studies, hatchling gopher tortoises moved infrequently and over very short distances through their first winter, a period during which they are presumably receiving energy from yolk stores. With the onset of warm spring weather, hatchling tortoises began to move more, most likely to obtain energy after depleting yolk stores. Refugia included both burrows and pallets (short holes in the ground), which were surrounded by a high percentage of ground cover (81.4%) and tall (> 50 cm) vegetation. Home range size estimations depended heavily on the number of different locations recorded for each individual and varied from 0.0001 to 4.8 ha, depending on the method of calculation and longevity of the hatchling. Hatchlings moved infrequently, spent large amounts of time in burrows and under tall vegetation, and moved short distances while changing refugia. However, these data represent some of the largest home range sizes reported for *G. polyphemus* to date, suggesting that dispersal and the hatchling life stage are important behavioral aspects that, if neglected, may result in underestimating spatial requirements necessary to support all ecological aspects of this declining species.

SHADING AND LARVAL TRAITS

B. Lauck et al. [2005, J. Herpetology 39(3):478–486] note that removal of vegetation directly surrounding a breeding pond has the potential to significantly alter the environmental conditions experienced by larval amphibians during development and, therefore, may affect the life history of this and subsequent life stages. In this study, the authors investigated growth, development, and survivorship of *Litoria ewingii* as a result of different shading conditions in a commercially logged forest in Tasmania, Australia. The authors specifically investigated responses in two types of breeding ponds available to the species: permanent ponds, and smaller ephemeral ponds. Increased shading in permanent ponds resulted in reduced survival. Larval growth and development did not respond significantly to shading treatment in permanent ponds but were significantly affected by pond elevation. In ephemeral ponds, increased shading resulted in decreased developmental rate and a higher coefficient of variation for size at metamorphosis. The findings suggest that the larval success of *L. ewingii* is not likely to be enhanced by vegetative buffer zones around permanent pond margins but may be enhanced by ensuring heterogeneity of shading conditions around ephemeral ponds.

Unofficial Minutes of the CHS Board Meeting, March 10, 2006

Rich Crowley called the meeting to order at 7:32 P.M. Board members Betsy Davis, Jason Hood, Marybeth Trilling and Erik Williams were absent.

Officers' Reports

Recording Secretary: Zorina Banas read the minutes of the February 10 board meeting. Minor adjustments were made and the minutes were accepted.

Treasurer: Andy Malawy distributed the February financial reports.

Membership Secretary: Deb Krohn distributed the membership report. Membership stands at 569 for March 2006.

Corresponding Secretary: Cindy Rampacek announced that the Chicago Park District will be putting on its first garden and landscape design show focusing on urban horticulture and community greening. Garden in a City will debut in Chicago's Grant park, May 13–21, 2006, and the CHS is invited to display. Cindy will be getting back in touch with the Chicago Park District. Matt Porth, Volunteer Coordinator for the Museum of Science and Industry, attended the CHS January general meeting. The Museum of Science and Industry is in the process of recruiting volunteers to assist with overall maintenance of the poison dart frog vivarium. Matt suggested that the CHS can potentially be of assistance to the MSI.

Committee Reports

Grants: Mike Dloogatch announced the winners of the 2006 CHS grants. Mike moved to increase funding for the grants program by $244.00. Deb Krohn seconded the motion. The motion passed unanimously.

Old Business

Vet list: Cindy Rampacek distributed a completed sample letter. Linda Malawy suggested getting written permission from the veterinarians to post their information on the vet list web page.

Membership survey: Deb Krohn is continuing to work on the web version.

Kingsnake ad: Cindy Rampacek reported that the general kingsnake ad went into rotation this week.

New Business

Massasauga conservation: The board discussed the possibility of responsibly displaying the massasauga rattlesnake at this year's ReptileFest. Rich Crowley read the CHS mission statement and the basic rules for public display and requirements for display of venomous reptiles. Linda Malawy made a motion to authorize Wildlife Discovery Center to display a live massasauga at ReptileFest this year. Rich Crowley seconded the motion. The motion passed 6-1 with Mike Dloogatch opposed. Linda Malawy mentioned that there will be a need for an additional $500 insurance premium if we are to display a venomous reptile. Linda moved to allocate funds for the $500 premium provided that we get permission from UIC to exhibit a live massasauga at ReptileFest. Cindy Rampacek seconded the motion. The motion passed 6-1 with Mike Dloogatch opposed.

Roundtable

Cindy Rampacek reported that a bill to establish a regulated fishery for diamond-backed terrapins is currently in committee in the Maryland General Assembly. Information on the status of this bill can be found at http://mlis.state.md.us/2006rs/billfile/hb0980.htm

The meeting was adjourned at 9:28 P.M.

Respectfully submitted by Zorina Banas, Recording Secretary.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. PO Box 85, Alpine TX 79831. Call **toll-free** at (800) 720-0076 or visit our website: < http://www.themousefactory.com> .

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: books. *Australia's North* by Stanley and Kay Breeden, 1975, 208 large (9 3/4 × 12") pp., excellent color and b&w photos including many reptiles such as olive and black-headed pythons, frill-necked lizard (full page color), water, spiny-tailed, and long-tailed rock monitors, a very good natural history of the Top End, DJ, $35; *Reptiles of Australia* by Charles Barrett, 1950 (first ed.), 168 pp., b&w photos, drawings, no DJ, $80; *A Field Guide to Reptiles and Amphibians . . .* by Roger Conant, 1958 (first printing of first ed.), loose binding, no DJ, $40; *Boy's Book of Snakes* by Percy Morris, 1948, 185 pp., b&w photos, good information about habitats and behavior, some ink marks on two pages, $20; *The British Amphibians and Reptiles* by Malcolm Smith, 1973, 322 pp., 91 figs., 16 color and 16 b&w photos, detailed info on many aspects, DJ, $25; *Eric Worrell's Australian Reptile Park*, 1968, 48 pp., many b&w photos, a guide to the park including info on venomous snakes, venom extraction, and the snakebite treatment in vogue then, softbound, $7. Postage $2.50 for orders under $25, free for orders of $25 or more. All books in excellent condition unless otherwise indicated. William R. Turner, 7395 S Downing Circle W, Littleton, CO 80122, (303) 795-5128, e-mail: toursbyturner@aol.com.

For sale: many aquariums from 10 to 75 gallons, call for prices, (708) 799-6697.

For sale: Four (4) 12- to 18-month-old crested geckos (at least one egg-laying female), various colors and patterns, with 31" tall Creative Habitats screen/glass tank and nice accessories. Also, 7-year-old leopard gecko in a 36" long glass tank plus accessories. Moving and just looking to recoup a portion of my costs. Chicago area only; pick up in western suburbs. Please call if interested. Chuck, (630) 986-5951.

For sale: c.b. '06 rare and unusual garter snakes. **Eastern**—normals $25 each/2 for $40, albinos (various bloodlines) $250, granite $150, het granite $75, melanistic $40, Florida $25 each / 2 for $40, flames $100, flame × albino $150 each / $275 pair, erythristics $100 each, erythristic × albino $150 each / $275 pair, snow (limited numbers) $395, paradox leucistic $450, possible hets $250–300 pair. **Plains**—normals $25 each / 2 for $40, anerythristic $40, axanthic $75, albinos—2 strains $75, quad hets $75, Christmas albino $125, super Christmas albino $175, hybinos $195, snow—2 strains $95. **California red side** $125. **Wandering**—normals $25 each / 2 for $40, melanistic $95, het melanistics $45, chocolate $95. **Santa Cruz** $60. **Red-sided**—normals $25 each / 2 for $40, albinos $375, anerythristic $75, double het snow $225 pair. **Eastern black-necked** $95. **Blue-striped (*similis*)** $40. **Mesoamerican highlands**, $40. Scott, (919) 365-6120 EST, email sfelzersgarters@bellsouth.net, web address: www.gartersnakemorphs.com.

Herp Tours: Why pay more? Travel with the International Fauna Society, a 501 (c)3 not-for-profit organization, and experience the Costa Rican rainforest! Stay at the beautiful Esquinas Rainforest Lodge in the untouched herpetological paradise that is Piedras Blancas National Park. Meet new friends, relax in the naturally-filtered swimming pool or in the lush, fauna-filled tropical garden. Discounts for IFS and Chicago Herp Society members. For details, visit The International Fauna Society website at www.faunasociety.org or E-mail: info@faunasociety.org.

Herp tours: Adventure trips to **Madagascar**! Journey somewhere truly unique to seek and photograph nature on the world's least-studied mini-continent. For maximum herp fun and discovery, join Bill Love as we go where few people will ever venture in their lives. Let his experience assure a comfortable tour finding the most colorful and bizarre species on the planet! Get all the details at Blue Chameleon Ventures' comprehensive new website: < http://www.bluechameleon.org> , E-mail: bill@bluechameleon.org, or call (239) 728-2390.

Herp tours: The beautiful Amazon! Costa Rica from Atlantic to Pacific! Esquinas Rainforest Lodge, the Osa Peninsula, Santa Rosa National Park, and a host of other great places to find herps and relax. Remember, you get what you pay for, so go with the best! GreenTracks, Inc. offers the finest from wildlife tours to adventure travel, led by internationally acclaimed herpers and naturalists. Visit our website < http://www.greentracks.com> or call (800) 892-1035, e-mail: info@greentracks.com

Internship: The Kentucky Reptile Zoo, a nonprofit organization, seeks student interns for the 2006 season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will *not* be involved in the handling of any venomous species. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Interns are required to be either college students or recent graduates. Former interns have arranged for academic credit with their institutions. Benefits include experience with one of the most extensive and diverse collection of snakes in the U.S., housing and $55/week to cover expenses. Interns have been successful in finding zookeeper positions: over 95% hire rate! Personal transportation is recommended. A valid driver's license is required. Starting dates are flexible, but a minimumof 3 months covering summer (June–August), or fall (September–November) is required. Deadlines are April 1 for summer and July 1 for fall. To apply send a cover letter, resume, transcript, and at least 2 (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L&E Railroad, Slade KY 40376. Or E-mail: kyreptil@pop.mis.net.

Reptile show: Wisconsin Reptile Breeders' Show and Sale, Saturday, April 22, 10 A.M. to 4 P.M., 1011 Nichols Road, Monona, Wisconsin. Captive-bred only. $4 admision, $2 under 12. Info: aor@chorus.net or (608) 238-2891.

Virtual Museum of Natural History at www.curator.org: Free quality information on animals—emphasis on herps—plus expedition reports, book reviews and links to solid information. Always open, always free.

Wanted: I'm looking for my soulmate. I want to settle down to a family before it is too late. But I have this problem. . . . When we get into hobbies and interests: old popular records, jazz and show tunes, and antique electronics are fine, but when I mention turtles, "What, are you crazy?" So maybe this is a better place to look. Please don't try to separate me from my turtles—at least not most of them. If interested, please drop a line to Ellis Jones, 1000 Dell, Northbrook IL 60062, telling a bit about yourself and giving a phone number.

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: MADadder0@aol.com.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, April 26, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Dr. Pieter Johnson**, of the Center for Limnology, University of Wisconsin, will report to us on the results of his research into the causes of amphibian malformations. Beginning around the mid-1990s, numerous reports of malformed amphibians generated widespread concern among scientists, health officials, and state and federal agencies. In large part, the deformities involved recently metamorphosed frogs with extra limbs, partially and completely missing limbs, and a variety of other limb abnormalities. After some detective work worthy of CSI, Pieter has come up with a convincing explanation for this "plague of frogs."

At the May 31 meeting, **Dr. William Griswold**, a veterinarian from Phoenix, Arizona, will speak on "Hiding in Plain Sight: Florida's Overlooked Herpetofauna." Many of the Sunshine State's rarest and most unusual reptiles and amphibians are little known to the average herpetologist. Dr. Griswold will share photographs, natural history vignettes and personal experiences from eighteen years of field herping from the farthest reaches of the Florida Panhandle to the southernmost point of Key West.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

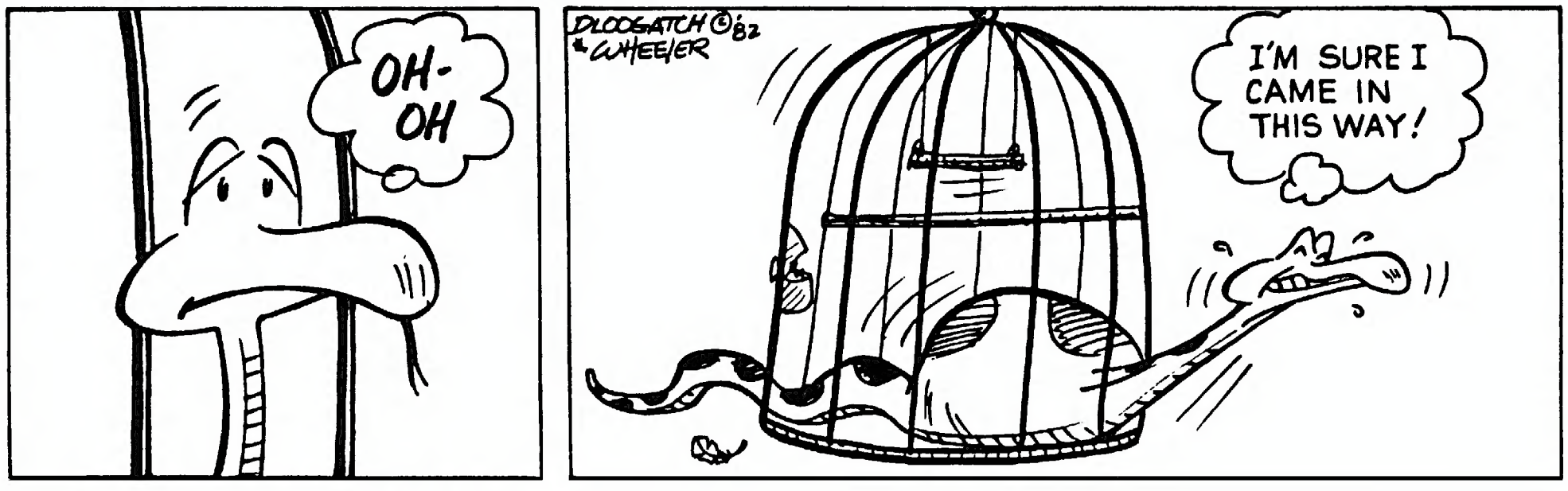
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the May 19 board meeting, to be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. To get there take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. There is a free parking lot to the left and behind the building.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: http://www.geocities.com/~chicagoturtle.

THE ADVENTURES OF SPOT



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